WELCOME TO THINKING MAPS

Day One Training
What are the needs of your students? What are your school’s improvement plans?
The content(s) you teach

The grade level(s) you teach

THE NEEDS OF MY STUDENTS
Instructional Shifts for College and Career Readiness

**LITERACY**
- Building knowledge through content-rich nonfiction and informational texts
- Reading and writing grounded in evidence from text
- Regular practice with complex text and its academic vocabulary

**MATH**
- Focus strongly where the Standards focus
- Coherence: Think across grades and link to major topics within grades
- Rigor: Require conceptual understanding, procedural skill and fluency, and application with intensity
The Table of Contents

Chapter 1
INTRODUCTION

Chapter 2
TEACHING

Chapter 3
LITERACY LINKS

Chapter 4
CONTENT CONNECTIONS

Chapter 5
INSTRUCTIONAL STRATEGIES

Chapter 6
ASSESSMENT

A LANGUAGE FOR LEARNING
TEACHING THE CIRCLE MAP

INFORMATION ABOUT YOU

YOUR NAME

People or things that have influenced you
Carmen Loves Pizza and Loves Music.
COACH

L.A. PLAYING

CALI

MOVIES

MATH

CARS

NINTENDO 64

GAME CUBE

DANCING

HARRY POTTER

SKATING

SOCCER

MEXICO

FRIENDS

MUSIC

COMPUTER
You have been introduced to Thinking Maps®

Chapter 1

- You can name the 5 key points defining Thinking Maps®
- You can explain the similarities and differences between Graphic Organizers and Thinking Maps®
- You can identify the thought process behind each Thinking Map and the Frame of Reference
- You can draw and define each map
- You have a beginning understanding of how to use the maps in a variety of curriculum areas
What are the defining characteristics of Thinking Maps?
What are Thinking Maps?

Used in combination for depth and complexity

Based on 8 Cognitive Skills

Used by all teachers

Applied in all content areas
What is the source?

ALL OF THE SPACE IN YOUR BRAIN THAT IS DEVOTED TO THE 5 SENSES

75%

25%

ALL OTHER SENSES

How does this information impact teacher instruction and student learning?
What are Thinking Maps?

Visual Patterns

Based on 8 Cognitive Skills

Used by all teachers

Applied in all content areas

Used in combination for depth and complexity
DRAW AN ILLUSTRATION OF A PATTERN

PATTERNS HELP WITH PREDICTION.
Graphic organizers do not provide students with predictable patterns for thinking.
This confusing variety of graphic organizers makes it impossible for students to own these tools.
1. Terms & Names
   Explain the significance of:
   - freedmen's school
   - sharecropping
   - Ku Klux Klan
   - lynch

2. Taking Notes
   Use a cluster diagram like the one below to review details about sharecropping.
   ![Sharecropping Cluster Diagram]
   - Sharecropping
   - [List of related terms]
   For farmers, what were the advantages and disadvantages of sharecropping?

3. Main Ideas
   a. How did freedom help strengthen African-American families?
   b. How were African Americans educated during Reconstruction?
   c. What were the main reasons African Americans wanted their own land?

4. Critical Thinking
   Analyzing Causes
   Despite greater civil rights, why did African Americans still face difficulty in improving their lives?
   THINK ABOUT
   - the defeat of the land-reform bill
   - the Ku Klux Klan's rise
   - the attitude of military authorities in the South

ACTIVITY OPTIONS
   SPEECH
   ART
   Make a speech to President Johnson or design a mural explaining why land should be given to newly freed African Americans.
4/9/52 8 11 2, 3 (Friday)

2)

- Farmers worked food for families but landlords made them grow cotton
- Many had lost land during the war
- After the war, the cost of cotton went down
- Farmers had to buy food at local store

3)

a. Freedom strengthened African American families b/c the law said they could work
SCAFFOLDING

SECURITY AND ACCESS

“What is important is to allow all students to interact with challenging text on their own as frequently and independently as possible.”

Common Core Standards Appendix A
“What is important is to allow all students to interact with challenging text on their own as frequently and independently as possible.”
Types of Visuals
Types of Visuals

Brainstorming
  - Webs, Clusters
    - "mind" mapping
    - webbing
    - clustering

Content Specific Graphics
  - life cycles in Science
  - timelines in History
    - Venn diagrams in Math
    - plot lines in Language Arts/English

THINKING MAPS
What are Thinking Maps?

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Circle Map

What is the definition of ____________?

Connection to Standards: Understand and use general (Tier 2) and domain-specific (Tier 3) academic vocabulary
Circle Map

Define
Brainstorm
List
Identify
Tell all about
Bubble Map

Which word best describes ___________? What are the qualities of ____________?

Connection to Standards:
Use relevant descriptive details and sensory language in reading and writing
Bubble Map

Describe
Characteristics
Adjectives
Qualities
Properties
Double Bubble Map

How are ___ and ___ alike?
What is the most important difference in...?

Connection to Standards:
Compare and contrast important points in two texts or points of view
Double Bubble Map

Compare and Contrast Similarities and Differences
Tree Map

Which of the following is a detail about...?
A ________ is a member of which of following categories?

Connection to Standards:
Determine the main idea and key supporting details in complex texts.
Tree Map
Classify
Group/Sort
Categorize
Related Details
Types of
Kinds of
Brace Map

What are the parts of...?

Connection to Standards:
Use common affixes to determine and clarify the meaning of unfamiliar terms.
Brace Map

Parts of Structure
Decompose Physical Components
Flow Map

Which of these steps comes first? What are the stages of...?

Connection to Standards:
Understand the steps and patterns in complex processes in order to answer questions and solve problems.
Flow Map

Sequence
Stages
Cycles
Patterns
Steps
Multi-Flow Map

Why did ______? What are the benefits of _______?

Connection to Standards:
Determine the impact the author’s purpose and point of view have on a text.
Multi-Flow Map

Causes/Effects
Consequences
Benefits
Why
Outcomes
Bridge Map

How are _______ and 
_______ related?

Connection to Standards: Analyze the relationship between a primary and secondary source
Bridge Map

Relationship
Analogy
Metaphors
One-to-one
Correspondence
THINKING LIKE A MATHEMATICIAN
THINKING LIKE A MATHEMATICIAN
I THINK (HYPOTHESIS)

RESULTS BASED ON LAB / EXPERIMENTS

EXPERIMENT VARIABLES

THINKING LIKE A SCIENTIST

BASED ON MY RESEARCH, I CONCLUDE...
POSSIBLE CAUSES OR CONTRIBUTING CAUSES

CONFLICT RESOLUTION

THEME

THINKING LIKE A LITERACY CRITIC
1. Students need to **learn how to think**. Just like swinging a bat or playing the piano, good thinking has learnable components. And the process of clear thinking should not be left a mystery to students, or to teachers.

2. Learning to think **requires practice** in thinking. Thinking needs to be frequent and ongoing.
3. Thinking is **hard work**. Students must confront that fact. Teachers must acknowledge it.

4. Thinking is for **everyone**. It is not the preserve of the quick. And slow does not mean futile.

5. Thinking is clarified by writing.
“Thinking Maps store information the way the brain does.”

Pat Wolfe
NEURONS THAT FIRE TOGETHER GET WIRED TOGETHER.
THAT IS WHAT A PATTERN IS!
“The overwhelming need for learners is for meaningfulness… we do not come to understand a subject or master a skill by sticking bits of information to each other.

Understanding a subject results from perceiving relationships. The brain is designed as a **pattern detector**.

Our function as educators is to provide our students with the sorts of experiences that enable them to perceive **patterns that connect**.”

Girls
Sam
Katie
Me
Christa
Kendall
Larinn
Monica
Katie

Boys
Max
Adam
Shay
JR
Trey
Brandon
Travis

Cool Matches
Couples
yes
no
?
yes
no
?
yes
no

yes
with
Identify 4 specific changes in science and technology and explain their effects on Western European family and private life between 1918 and 1970.
What are Thinking Maps?

- Visual Patterns
- Based on 8 Cognitive Skills
- Used by all teachers
- Applied in all content areas
- Used in combination for depth and complexity
Thought process: Sequencing

When do you use sequencing in:

READING?

WRITING?

SCIENCE?

MATH?

SOCIAL STUDIES?

THE ARTS?

In every instance, you could use a

FLOW MAP

[Diagram of flow map with three boxes connected by arrows]
Prophase

Metaphase

Anaphase

Telophase

Interphase
Iduna and the Magic Apples Flow Map

Iduna lives in the Everlasting Garden. She guarded the magic apples that kept the gods immortal.

Thiassi, the wicked giant, wanted to capture Iduna, marry her, and take the magic apples.

Thiassi tricked Loki into luring Iduna out of her garden.

Loki finds Iduna and turns her into a bird. But soon Thiassi finds out that she has escaped and pursues them for three days and nights.

Loki tricks Iduna to come out of her garden and is captured by Thiassi who takes her to his castle while her garden withers and dies.

The other gods find out that Loki helped capture Iduna and is sent to go rescue her from Thiassi as a hawk.

After three days and nights, Loki and Iduna barely escape. Thiassi, who perished in a fire the gods ignited.

Iduna gives the gods her apples so they would become immortal, and she returns to the garden and lived happily ever after.

By:
The Black Death began in China → Ships returning from Asia brought it to Italy → Spread to the rest of Europe along trade routes → 1/3 of Europe's population died → Not enough people to do the work

- Surviving peasants demanded better conditions and wages
- Feudal system began to break down
Adding and Subtracting Matrices (MATH 3)

1. Make sure matrices have the same dimension.
   - If not, can't add.

2. Add/subtract corresponding entries.
   - Pay attention to your signs.

3. Resulting matrix is your answer.
   - Matrix should have the same dimension.

Examples:
1. \((2\ -5) + (-3\ -9)\)
   \[
   \begin{pmatrix}
   2 & -5 \\
   11 & 4
   \end{pmatrix}
   +
   \begin{pmatrix}
   -3 & -9 \\
   14 & 1
   \end{pmatrix}
   =
   \begin{pmatrix}
   2+(-3) & -5+(-9) \\
   11+14 & 4+1
   \end{pmatrix}
   =
   \begin{pmatrix}
   -1 & -14 \\
   25 & 5
   \end{pmatrix}
   
2. \((2\ -5) - (-3\ -9)\)
   \[
   \begin{pmatrix}
   2 & -5 \\
   11 & 4
   \end{pmatrix}
   -
   \begin{pmatrix}
   -3 & -9 \\
   14 & 1
   \end{pmatrix}
   =
   \begin{pmatrix}
   2-(-3) & -5-(-9) \\
   11-14 & 4-1
   \end{pmatrix}
   =
   \begin{pmatrix}
   5 & 4 \\
   -3 & 3
   \end{pmatrix}
   

What are the stages of throwing on the Potter's Wheel?

**Steps to Throwing**

1. Wedge 2 pieces of clay → Center one of your pieces → Create a hole pressing down in the center until you're 1" from wheel head
2. Pull wall open as wide as you'd like your pot
3. Begin pulling up your walls → Trim off your flare and even rim → Remove your vessel from the wheel head using a wire cutter.

*Source: Textbook, teacher, experience*
High school students, more than anyone, need a common language as they navigate the waters of each discipline.
What are Thinking Maps?

- Visual Patterns
- Based on 8 Cognitive Skills

- Used in combination for depth and complexity
- Applied in all content areas

- Used by all teachers
Bees are little, colorful insects. Some bees are very fat. They are fast and dangerous.
Middle School Social Studies

Joan of Arc

- religious
- determined
- illiterate
- focused
- dedicated
- French
- Whose POV?
- influential
- young
- inspiring
- gifted
- poor
- Godly

Evidence from her life
MEDEA

- REVENGEFUL
- DECEITFUL
- HEARTLESS
- SLY
- EVIL
- JEALOUS
- CARELESS
- BITTER
<table>
<thead>
<tr>
<th>Grade(s)</th>
<th>Reading Standard 10 (individual text types omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Actively engage in group reading activities with purpose and understanding.</td>
</tr>
<tr>
<td>1</td>
<td>With prompting and support, read prose and poetry [informational texts] of appropriate complexity for grade 1.</td>
</tr>
<tr>
<td>2</td>
<td>By the end of the year, read and comprehend literature [informational texts] in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.</td>
</tr>
<tr>
<td>3</td>
<td>By the end of the year, read and comprehend literature [informational texts] at the high end of the grades 2–3 text complexity band independently and proficiently.</td>
</tr>
<tr>
<td>4</td>
<td>By the end of the year, read and comprehend literature [informational texts] in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.</td>
</tr>
<tr>
<td>5</td>
<td>By the end of the year, read and comprehend literature [informational texts] at the high end of the grades 4–5 text complexity band independently and proficiently.</td>
</tr>
<tr>
<td>6</td>
<td>By the end of the year, read and comprehend literature [informational texts, history/social studies texts, science/technical texts] in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.</td>
</tr>
<tr>
<td>7</td>
<td>By the end of the year, read and comprehend literature [informational texts, history/social studies texts, science/technical texts] in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.</td>
</tr>
<tr>
<td>8</td>
<td>By the end of the year, read and comprehend literature [informational texts, history/social studies texts, science/technical texts] at the high end of the grades 6–8 text complexity band independently and proficiently.</td>
</tr>
<tr>
<td>9–10</td>
<td>By the end of grade 9, read and comprehend literature [informational texts, history/social studies texts, science/technical texts] in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.</td>
</tr>
<tr>
<td>11–12</td>
<td>By the end of grade 11, read and comprehend literature [informational texts, history/social studies texts, science/technical texts] in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.</td>
</tr>
<tr>
<td></td>
<td>By the end of grade 12, read and comprehend literature [informational texts, history/social studies texts, science/technical texts] at the high end of the grades 11–CCR text complexity band independently and proficiently.</td>
</tr>
</tbody>
</table>
What are Thinking Maps?

Visual Patterns

Used in combination for depth and complexity

Thinking Maps®

Based on 8 Cognitive Skills

Used by all teachers

Applied in all content areas
PLANTS

Explain the life cycle of a plant.

Name and describe the parts of a plant.

Explain how plants are classified.

Describe the impact of drought on a plant.

Describe the uses of plants.

Identify the function of each part of the plant.
Bacteria are everywhere. They are found in air, water, soil, your food, and in the bodies of all living things. They can live in places where no other living thing survives. They have been found in the icy regions of the Arctic and Antarctic, and in the near-boiling waters of hot springs. They live on mountaintops and ocean bottoms. A drop of pond water may contain over 50 million bacteria.
• Describe the characteristics of bacteria.
• Name and describe the structures of the bacterial cell. Explain how bacteria are classified.
• Distinguish between heterotrophic and autotrophic bacteria.
• Describe the various types of bacterial respiration.
• Discuss the role of bacteria in nature.
• List several ways to limit bacterial growth.
Integration of Knowledge and Ideas

“Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.”
PLACE VALUE: ORDERING NUMBERS

3 X 5 cards

543 → 534 → 453 → 354

is greater than
Developing Conceptual Understanding

So what do you now understand about place value? So why is place value important?
Definition:

A relation is a set of input-output valued relations.

Mapping:

Illustration:

Example:
Relation

Order Pair
((0, 1), (1, 1), (2, 3))

Definition
(x, y)

Graphing

Mapping

Table

x

y

1

0

1

2

3
Relating Factors can be interpreted as

\[
\begin{align*}
\text{Domain} & \xrightarrow{\text{Relation}} \text{Range} \\
\text{set of } x-\text{coordinates} & \xrightarrow{\text{set of } y-\text{coordinates}} \text{ordered pairs} \\
\text{Input} & \xrightarrow{\text{output}} \text{output}
\end{align*}
\]

\[
[(9,1),(1,1),(2,3)]
\]
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the definition of --?</td>
<td></td>
</tr>
<tr>
<td>What is the role of mitosis in --?</td>
<td></td>
</tr>
<tr>
<td>How do some animals reproduce asexually?</td>
<td></td>
</tr>
<tr>
<td>How do plants reproduce asexually?</td>
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</tr>
</tbody>
</table>

**Key Ideas and Details**

“Ask and answer questions to demonstrate understanding…”

Remember the question you choose will determine the map that you use!
**Asexual Reproduction**

Asexual reproduction is reproduction that does not involve the union of sex cells and in which a single parent (original cell) produces offspring that are genetically identical to the parent (original cell).

**Mitosis**

A cell makes more cells by:

1. copying its DNA
2. dividing into 2 new cells, each with a copy of the original DNA.

![Diagram showing mitosis process]

Some animals reproduce asexually by:

- Budding - part of the parent pinches off and makes a new, independent organism (ex: hydra)
- Fragmentation - part of the parent breaks off and makes a new organism.
- Regeneration - when an organism loses a body part, that part may develop into an entirely new organism.

Plants that reproduce asexually don't need flowers to reproduce. Part of the root or stem produces a new plant.

- Plantlets - Tiny plants grow along the edges of a plant's leaves. These plantlets fall off and grow on their own.
- Tubers - underground stems, or tubers, can produce new plants after a dormant season.
- Runners - Above ground horizontal stems from which new plants can grow.

**Advantages**

- No sex cells needed
- Cells are genetically identical
- Quick and efficient

**Disadvantages**

- Limited genetic variation
- May not adapt to changing environments
- More susceptible to new diseases

DNA NOT in a nucleus - Ex: bacteria
“What are the advantages and disadvantages of asexual reproduction? What are the effects of the disadvantages?”

**Advantages**
- Involves only one parent, so organisms spend less time and energy finding a mate and making eggs.
- Produces offspring identical to the parent.
- Faster
- No fertilization is required.

**Disadvantages**
- No genetic variation among offspring.
- If the environment changes too much, all the organisms will either die or have to go dormant.
- Very susceptible to new diseases.
- No way to change or adapt when the environment changes.
“What are the parts of a cell?”

- **Cell Membrane and Cytoplasm**
  - Cell Membrane: covers the outside of the cell, acts as a protective barrier, controls what comes in and out.
  - Cytoplasm: fluid inside the cell, where the work is done.

- **Organelles**: structures that perform specific functions.

- **DNA**
  - DNA is the genetic material that carries the information needed to make new cells and new organisms. Passed from "parent" cells to new cells. Functions: to control the activities of a cell.
  - DNA in a nucleus:
    - Ex: people, plants, animals, fungus
  - DNA not in a nucleus:
    - Ex: bacteria
“What are the stages of mitosis?”

- **Interphase**
  - p99
  - Cell grows
  - Cell copies its organelles and chromosomes (genetic material)

- **Prophase**
  - p100
  - Nuclear membrane dissolves
  - Chromosomes condense (wind up 8x) and become visible

- **Metaphase**
  - p100
  - Homologous (matching) pairs of chromosomes line up along the equator (middle) of the cell

- **Anaphase**
  - p101
  - One of each pair of chromosomes moves to the opposite sides of the cell
  - Nuclear membrane reforms.
  - Chromosomes unwind
  - Cell pinches in two

- **Telophase**

How does mitosis ensure that a new cell is identical to the parent/original cell?
- Exact copies are made, then they move to opposite ends.
MAKING THE LEARNING RELEVANT

The Order of Importance to Me

1st
My grade level

2nd
The state I live in

8th
Things that are important to me
MAKING THE LEARNING RIGOROUS

The Order of Importance Based on Another Point of View

? → ? → ? → ?
REFLECTIVE THINKING

What if...

Bill of Rights not included in the Constitution

Predict the effects

What if...

A Specific Amendment wasn't included in the Bill of Rights

Predict the effects
Fast and Slow

Directions: Cut out and glue the pictures in the right boxes above.

- Rabbit
- Leopard
- Snail
- Turtle
MOTION

Fast

Slow

- Cheetah
- Rabbit
- Snail
- Turtle
Academic Rigor

slides → crawls → hops → runs
Academic Rigor
The leopard is fast.
The turtle is slow.
Academic Rigor

What if the turtle didn’t have a shell on its back... 

What if the leopard had short little legs...
Follow-up Professional Development

MULTIPLE MAPS

Multiple Maps 201
Enhance thinking fluency for critical & creative thinking through the use of multiple maps.
What are Thinking Maps?

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Applied in all content areas

Thinking Maps®
Processing Activity

1. Put away your notes. Then work with your group to define Thinking Maps.

2. Use a Circle Map to collect your ideas.

3. Include any notes that you remember about what they are and why they work as tools for thinking.

4. Also include information about how Thinking Maps are different from graphic organizers.
Better learning will come not so much from finding better ways for the teacher to INSTRUCT but from giving the learner better ways to CONSTRUCT MEANING.

The maps should become

STUDENT TOOLS FOR INDEPENDENT THINKING AND COLLABORATION.
Calvin & Hobbes  by: Bill Watterson

YOU HAVE A QUESTION, CALVIN?

YES! WHAT ASSURANCE DO I HAVE THAT THIS EDUCATION IS ADEQUATELY PREPARING ME FOR THE 21ST CENTURY?

AM I GETTING THE SKILLS I'LL NEED TO EFFECTIVELY COMPETE IN A TOUGH, GLOBAL ECONOMY? I WANT A HIGH-PAYING JOB WHEN I GET OUT OF HERE! I WANT OPPORTUNITY!
IN THAT CASE, YOUNG MAN,
I SUGGEST YOU START
WORKING HARDER. WHAT YOU
GET OUT OF SCHOOL DEPENDS
ON WHAT YOU PUT INTO IT.

OH.

THEN
FORGET IT.
What is the purpose of each map and how do these visual patterns support critical and creative thinking?
Guiding Questions

• How do you know what you know about this topic?
• Did your information come from a specific source?
  • Is this information being influenced by a specific point of view or perspective?
• So what do you now understand about the information in your map?
• Why is this information important?
Bridge Map

How are _______ and _______ related?

Connection to Standards: Analyze the relationship between a primary and secondary source
Drawing the Map

THE BRIDGE MAP

Relating Factor

First Pair

as

Second Pair
Note Taking Guide

Identify the THOUGHT PROCESS

SEEING ANALOGIES

KEY WORDS

Identify the Relationship, Guess the Rule, Symbolism, Metaphor, Allegory, Analogy, Simile
The Bridge Map helps students identify the relationships between words. As long as the relationship remains the same, the Bridge Map can be extended beyond 2 pairs of words.

An apple is a type of fruit as a carrot is a type of vegetable.
Head  AS  Numerator
Body  Fraction

Relating Factor:  Is the top part of...
CLASSROOM APPLICATIONS

The next few slides show examples of Bridge Maps created by teachers and students from across the country.

Record your notes on page 71.
Great lessons don’t happen by accident any more than gardens flourish without care.
¿De donde vienen los productos?

- Salsa de tomate
- Banco
- Huevo
- Miel
- Camiseta

- Producto de tomate
- Producto de albol
- Producto de Gallina
- Producto de Udeja
- Producto de Algodón
RF: is a way of
caterpillar as butterfly
seed as plant
frog as tadpole
acorn as tree
relating factor: grows into
People do their work in lots of places.
Can be easily broken but there is a single arrow in a bundle as holding hands of arrows of a single student as a single nation.
Dr. King said this quote means:

A man who won't die for something is not fit to live. As someone who won't stand up for others, people won't live a good life.

Love is the only force capable of turning an enemy into a friend. To be kind to enemies and they will become a friend.

The time is always right to do something right. It never a bad time to do something right.
Recreate this Bridge Map – love the idea

"The time is always right to do something right."

"We must accept finite disappointment but never lose infinite hope."

It’s never a bad time to do the right thing.

We must understand disappointment but never lose hope.
ARGUMENTS ARE REASONED, LOGICAL, AND INCLUDE EVIDENCE.
is more precise than

Relating Factor

SOURCE

very happy

as

very sad

delighted

forlorn

PreK - 2

TIER 2 WORDS
Vocabulary Development

powers
Relating Factor

mitochondria

as

cell

battery
Domain-specific Vocabulary
Tier 3

is the middle of

Relating Factor

median as cream
set of data an oreo cookie
SLOPE + RATE of CHANGE

Relating Factor: can be interpreted as

**RISE** can be interpreted as**RUN** can be interpreted

Change in $y$ can be interpreted as Change in $x$

$\Delta y = y_2 - y_1$ can be interpreted as $\Delta x = x_2 - x_1$

**QUANTITY** can be interpreted as **TIME** can be interpreted

Rate of change as change in quantity

Rate of change as change in time
In summer: hot, shorts + a tee-shirt.
In fall: warm and windy, a windbreaker + jeans.
In winter: cold and rainy or snowy, a hat, a scarf, mittens, a coat and pants.
In the spring: warm and rainy, a raincoat, boots and pants.
RF: is represented by
Relating factor: makes decisions in

Democratic State

Elected representatives

Fascist State

the leader

Authoritarian State

the central party
Major events in history are often have “trigger” causes.

Rosa Parks' refusal to give up her seat on the bus as a catalyst for the Civil Rights Movement.

www.behindthesceneshistory.com
Support structure

Support for

Sponges

Spicules

Support structure

Just like

Shell

Support for

Just like

Mollusks

Support structures in animals

Exoskeleton

Support for

Just like

Arthropods

Simple → complex

Internal shell

Support structure

Just like

Echinoderms

Chordates

Support structure
Rules for Integer Operations
Multiplication and Addition

Results from R.F

Adding a positives

Adding 2 negatives

Multiplying a positive and a negative

Multiplying 2 negatives

\[(+)(+), (-)(-), (+)(+), (+)(-)

\[\ldots \text{By using the number line}\]
JIGSAW ACTIVITY

Create "HOME" Groups

Group A
1 2 3 4 5 6

Group B
1 2 3 4 5 6

Group C
1 2 3 4 5 6
INFORMATION FOR EACH THINKING MAP

<table>
<thead>
<tr>
<th>Thought Process</th>
<th>Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guiding Questions</td>
<td>Key Information</td>
</tr>
<tr>
<td>Classroom Ideas</td>
<td>Cautions</td>
</tr>
</tbody>
</table>
Expert Group Assignment

1’s: Bubble Map, pages 30-35
2’s: Double Bubble Map, pages 36-41
3’s: Tree Map, pages 42-47
4’s: Brace Map, pages 48-53
5’s: Flow Map, pages 54-59
6’s: Multi-Flow Map, pages 60-65
Before going to your Expert Group:

1. Read the pages in Chapter One - Introduction that correspond with the map you have been assigned.

2. Highlight key information, take notes, and be prepared to share your ideas in your Expert Group.
Directions for Your Expert Group

Additional information about these instructions can be found on page 22

Your assigned pages

Discuss your map (thought process, construction, applications) → Identify 4 or 5 details to emphasize when you teach your map → Create an original example based on the theme of Education / Teaching

You have 15 minutes to complete this task.

Make sure your trainer checks your original example
Process for Teaching

Assign a time keeper. Each person will have 3 minutes to teach

Begin with the Bubble Map. Everyone listen and record notes.

The trainer presents a variety of examples.

Continue teaching and viewing

The trainer teaches the Circle Map

Developing a beginning understanding of all 8 Thinking Maps.
 Bubble Map

Which word best describes ________? What are the qualities of ________? 

Connection to Standards: Use relevant descriptive details and sensory language in reading and writing
Preschool Rocks!

Preschoolers

- talkative
- playful
- inquisitive
- brilliant
- energetic
- sweet
- persistent
- polite
- helpful
crazy
hyper
goofy
energetic
playful
excited
I like to dream.

Talented

Responsible

Smart

Beautiful

Respectful

I have manners. Nice to people.

I look like my Mother.

I help take care of my family.

I have Honey Ball.
Source: What evidence is there to support your inferences?

Margot
- Quiet
- Depressed
- Bullied
- Intelegent
- Lonely

"When the class sang songs about happiness and life and games her lips barely moved." Pg.291

"I think the sun is like a flower, that blooms for just one hour." Pg.290

"Get away. The boy gave her another push." Pg.291
Frame: How do I know this?

- Solutions
- Decreasing $(-\infty, 0)$
- Increasing $(0, \infty)$
- Parabolic
- Even
- Continuous
- Infinite
- Graph
- Advanced Functions or Advanced Math

Equation: $y = 2x^2 + 4$
**Concerned**
P.165 Line 3
Lady Macbeth: "Say to the king, I would attend his leisure for a few words." - William Shakespeare
(Speaking to the servant)

**Afraid**
P.6 Line 52
Macbeth: "Give me the daggers, creeping and the dead are pictures, 'Tis the eye of fear, it is the eye of childhood that fears a red devil. If he do bleed, I'll ne'er see faces of the grooms withal, must seem their guilt." - William Shakespeare

**Guilty**
P.106 Line 50
Lady Macbeth: "Here's the smell of the blood still. All the perfumes of Arabia will not sweeten this little hand. Oh, oh, oh!" - William Shakespeare

**Fake**
P.54 Linc116
Lady Macbeth: "Help me hence, ho!" (Lady Macbeth is carried out)

**Determined**
P.41 Line 60
Lady Macbeth: "We fail? But screw your courage to the sticking-place. And we'll not fail!" - William Shakespeare
Lab Observations

Observations using our 5 senses

Tier 2

- brittle
- metallic
- gray
- silver
- plentiful
Double Bubble Map

How are ____ and ____ alike?

What is the most important difference in...?

Connection to Standards: Compare and contrast important points in two texts or points of view
Frog

- Fat
- Eat insects
- Thin body
- Long back legs
- Smooth & wet skin
- Live mostly in wet places
- Bumpy & dry skin
- Live mostly on dry land

Amphibians

- Short back legs
Monocot Seeds
- One cotyledon
- Petals in groups of 3's
- Parallel venation in leaves

Both seeds come from grasses
- Both germinate
- Both produce plants

Dicot Seeds
- Two cotyledons
- Petals in groups of 4's
- Alternate venation in leaves

I found out petals in monocot in groups of 3's and dicot being in groups of 4's/5's.

I observed parallel venation in leaves and noticed venation in leaves in lab.

Jessica Lopez

Discovery video
How plants grow?
Emmanuel & Kaely

Types of lines

Both have at least one end point

not angles

not intersecting

not parallel

formed by a line

both straight

line segment

two end points

none of the sides keep going

ends in both sides

a ray

one end point

one side keeps going

ends on one side

STAR STUDENT
Informational Text

- It is Expository or Persuasive Writing
- It gives true information
- It is an example of biography, autobiography, encyclopedia, and newspaper
- They can be found in essays or paragraphs

Literary Text

- They are both text.
- They both deal with reading standards
- It tells a story.
- It is poem, poetry, adventure, mystery, and fairy tales

- It deals with Narrative Writing.
PROKARYOTIC CELLS

- NO NUCLEUS
- NO MITOCHONDRIA
- NO E.R.
- CELL WALL
- FLAGELLA

EUKARYOTIC CELLS

- MITOCHONDRIA
- E.R.
- NUCLEUS
- CYTOPLASM
- RIBOSOMES
- CELL WALL PLANTS ONLY
- CILIA
- EUKARYOTIC IS MORE DEVELOPED - MORE ORGANELLES

PROKARYOTIC - SIMPLE STRUCTURE

CYTOSKELETON

CELL MEMBRANE
The Bohr Model

- Protons
- Neutrons
- Electrons

Based on Rutherford's model
Electrons in a specific orbit
1913

Atoms make up everything
Atoms can combine to form compounds

Wave Model

Based on Wave Mechanics
Electrons are not in a specific orbit
Present
**Direct Variation**
- Graph must go through the origin.
- Will always create a straight line.
- The relationship between the variables $x$ and $y$ is expressed through division $k = \frac{y}{x}$.

**Inverse Variation**
- $k$ represents the constant.
- Relationship between variables has a constant change.
- Can be expressed in a table, graph, formula, or word problem.
- The relationship between the variables $x + y$ is expressed through multiplication $k = y \cdot x$.
- Graph never goes through the origin.
- Will always be a curved line.
Which of the following is a detail about...? A ________ is a member of which of following categories?

Connection to Standards: Determine the main idea and key supporting details in complex texts.
My face shows my feelings. My friends have feelings too.

I can be happy and sad in the same day.
I will be able to classify sentence types.

Sentence Types

Statement
- My dog is named Trooper.
- The dog caught the ball.
- I like to eat pizza.
- We live in North America.
- Mrs. Cocke read a book.

Command
- Get out your reading book.
- Go clean your room.
- Take out your homework folder.
- Go feed the dogs.

Question
- Do you like that story?
- Do you like to go to the beach?
- That was such a good book?
- Do you know what time it is?
- How many dogs do you have?
- What continent do we live in?
- How many kids are in your class?

Exchange
- Help, there is a fire!
- Yikes, watch out for the spider!
- That car was fast as lightning!
- Man, that roller coaster was scary!
We think setting goals is important because it helps us to improve.

4th Quarter Goals

Behavior Goals

I need to improve on my reading.
I want to improve my writing.
I need to improve my handwriting.
It is important to know what animals are: Mammals, Birds, Reptiles, Amphibians, and Fish.

I can classify different animals into 5 categories according to their traits.

- **Mammals**: dolphin, cat, elephant
- **Birds**: penguin, chicken, duck
- **Reptiles**: snake, alligator, turtle
- **Amphibians**: salamander, frog, toad, salamander
- **Fish**: pufferfish, clown fish, shark
Tree Map

Star

Vowels

A

Snake
Frame
Whale
Rake
Vase

E

Beach
Kite
Leaf
Vine
Nine

O

Orange
Rose
Robe
Hose
Bone
Rope

U

Tube
Flute
The Brand New Kid

Characters
- Lazlo
- Ellie
- Miss Kincaid
- Carrie
- Mrs. Gasky
- Ricky
- Susie McGraw

Setting
- School
- desks
- recess
- walking home
- Lazlo's house

Problem
- Lazlo is getting teased.

Solution
- Ellie was nice to Lazlo.
Fiction
(not true)

Realistic Fiction - could really happen

Fictional Fairytale magic "once upon a time"

Mystery Solving a crime w/ clues

Historical Fiction Not true stories about real historical events

Science Fiction Based on science w/ non real adventures

Fable/Folk tale Teach a lesson or retold

- animals, humans

First Day Jitters

Myth

Superstition explanation of earthly events

written long ago, usually gods or goddesses
Indians

Plains
The women and girls of these groups could set up the tepees quickly.

Long ago all our wild land there were no trees.
The men hunted for wild buffalo.

Woodland
They lived in a house called a wigwam.
They told stories.

For north
On land
They traveled in sleds pulled by husky dogs.

In the long dark winters
They sat on the steps of their wigwams.
They missed their warm beds and hogs.
The fire kept them warm.

The burned whale blubber for light.

Northwest Coast
The hat for well
The girls did housework.
The girls did housework.
The small girls did boy's work.
The boys did work.

Southwest
They built their homes on top of high cliffs.
The men grew corn, beets and squash.
The men grew corn, beets and squash.
Great for Assessment!

Measurement

Customary Units

Ounces (oz)
- pen
- book
- paper
- poster
- shoes
- pen
- cup
- hair pick

Pounds (lbs)
- dog
- radio
- reindeer
- overhead
- santa
- 100 pennies
- desk
- shark

Tons (T)
- car
- pole
- bathtub
- airplane
- boat
- tree
- person
- table
Tier 2 Vocabulary

Ways to say SAID

Negative
Sadness
- wept
- cried
- sobbed
- wailed

Pain
- howled
- yelped
- screamed
- cried out

Tiredness
- grumbled
- grunted
- screamed
- mumbled
- sighed

Anger
- fumed
- blared
- shouted

Fear
- quivered
- gasped
- trembled
- stammered

Wanting
- pleaded
- begged
- implored
- requested

Positive
Happiness
- joked
- laughed
- giggled

Caring
- comforted
- suggested
- soothed
- encouraged
M6D1c. Choose appropriate graphs to be consistent with the nature of the data.
Real Numbers!

Rational
- 2,222
- \( \sqrt{49} \)
- -10
- \( \sqrt{81} \)
- \( \frac{\sqrt{81}}{3} \)
- 0.55
- 3.64
- \( \frac{\sqrt{18}}{\sqrt{2}} \)
- -3.25
- -0.3
- \( \sqrt{144} \)
- \( \frac{35}{5} \)
- 0.123123...
- -212
- -236,961

Irrational
- 2.364123...
- \( \sqrt{5} \)
- -\( \sqrt{37} \)
- \( \frac{\sqrt{181}}{12} \)
- -\( \sqrt{163} \)
- 0.31311...
- \( \sqrt{91} \)
Types of Figurative Language

- alliteration
- simile
- metaphor
- hyperbole
- personification
- onomatopoeia

The puppy's bark was as loud as thunder.
The puppy was sneaky as a fox.
The puppy was as guilty as a偷东西的小孩.

The puppy was as cute as a button.
The puppy was as happy as a clam.

Whimper

The puppy whimpered when he was in pain.
M6D1c. Choose appropriate graphs to be consistent with the nature of the data.

- Math 6th grade -
"The Raven" by Edgar Allen Poe

Imagery Chart

Auditory
"gently rapping, rapping"

Visual
"rare and radiant maiden"
"this ebony bird"

Tactile / Auditory
"to still the beating of my heart"

Tactile / Visual
"cushion's velvet lining"

Olfactory
"air grew denser, perfumed"
The Cay

Character: curious, young
Phillip, 11 yrs old

Setting:
Caribbean, on the island of Curacao, in the city of Willemstad

Problem:
Shipwrecked & blind, gets stuck on a raft with a black guy.

Plot:
See flow map

Solution:
Many aircrafts came by, but a destroyer saved him.
**Tree Map**

**Symbiosis**

- **Mutualism**: Both species benefit. 
  - Example: Ants / Acacia
  - Relationship: +/+

- **Commensalism**: One species benefits, the other is unaffected.
  - Example: Demodex / Humans
  - Relationship: +/-

- **Parasitism**: One species benefits, the other is harmed.
  - Example: Tapeworm / Human
  - Relationship: +/-
Author’s Purpose

Inform
- Keller ISD OKs $156 million for 2004-05 budget
- National Night Out party set for Saturday in Keller

Entertain
- Testing out the turf
- Garfield comic strips

Persuade
- Laundry Bag Center
- Reserve the Dance
- Sassy
Athens, Greece

Government
- Council (500 men)
- Assembly (6,000)
  - Males over 18 yrs. participated
  - Women and slaves not considered citizens
  - Athenian citizens only

Economy
- Geographically based on trade
  - Agora - Marketplace
  - Pottery, Furniture
  - Own coins

Education
- Purpose to produce good citizens
  - Boys 6-7 yrs began formal education (reading, writing, math, literature)
  - 18 yrs - Military
    - Girls - homeschooled in cooking, cleaning, spinning thread, cloth
      - Usually married at 15
SYSTEMS OF LINEAR EQUATIONS

2 INTERSECTING LINES
- SLOPES ARE DIFFERENT
  - 1 POINT OF INTERSECTION
    - (X, Y)
    - CONSISTENT AND INDEPENDENT

2 PARALLEL LINES
- SLOPES ARE EQUAL, Y INTERCECTS DIFFERENT
  - NO POINTS OF INTERSECTION
    - NO SOLUTION
    - INCONSISTENT

2 COINCIDING LINES
- SLOPES AND Y INTERCEPTS ARE THE SAME
  - INFINITE POINTS OF INTERSECTION
    - {{X,Y}: Y = MX + B
    - CONSISTENT AND DEPENDENT
Functions

- Linear
  - \( f(x) = x \)
  - Line
    - largest exponent is 1
    - \( f(x) = x \)

- Quadratic
  - \( f(x) = x^2 \)
  - U-shaped
    - largest exponent is 2
    - \( f(x) = x^2 \)

- Cubic
  - \( f(x) = x^3 \)
  - S-shaped
    - largest exponent is 3
    - \( f(x) = x^3 \)
Brace Map

What are the parts of...?

Connection to Standards: Use common affixes to determine and clarify the meaning of unfamiliar terms.
Candace Park

house

chimney
roof
walls
window
doors
I can use an appositive to combine sentences. Having a variety of sentences in my paragraph makes my writing more interesting.

Jerome is a student at Eddy Middle School.

Jerome is on the honor roll.
epidermis

(epi (top / outer) derm (skin) is)

Add the meaning of each part in parentheses.
whole hour

½ hour - half hour

⅛ hour - quarter hour

⅛ hour - quarter hour

⅛ hour - quarter hour

⅛ hour - quarter hour
cornea
pupil
iris
lens
retina
optic nerve

{ rods
  cones }
to know what 2D figures make up 3D figures

4th gr. math
Math II Circles

diameter $\overline{AX}$
Tangent $\overrightarrow{ZW}$
Radius $\overline{QW}$ $\overline{QX}$ $\overline{QA}$
chord $\overline{AW}$ $\overline{AX}$
Secant $\overline{BR}$
Central $\angle WQX$
Inscribed $\angle WAX$
Center $Q$
Arcs $\overline{AW}$ $\overline{AWX}$ $\overline{AXW}$
A vice president took a client to lunch. The lunch cost $44.00. She left a 20% tip. What was the total cost of the lunch?

We need to know how to convert % to decimals.

We could use 10%.

We have to know that this is a two step problem.

We need some prior knowledge about what a “tip” is.
Flow Map

Which of these steps comes first? What are the stages of...?

Connection to Standards:
Understand the steps and patterns in complex processes in order to answer questions and solve problems.
How to Write a Decimal as a Percent

1. Analyze the Problem
2. Find the decimal
3. Move the decimal two places to the right
4. Rewrite the new number
5. Add the percent sign

0.125 → 0.125 → 0.125 → 12.5 → 12.5%
Our Morning Routine

1. Unpack your backpack.
2. Turn in your homework.
3. Choose your lunch.
4. Complete your Bellwork quietly.
5. Finish any work in progress.
6. D.E.A.R.
Adding and Subtracting Matrices (MATH 3)

Make sure matrices have the same dimension.

If not, can't add.

Add/subtract corresponding entries.

Pay attention to your signs.

Matrix should have same dimension.

Resulting Matrix is your answer.

(2, -5) + (-3, -9)

(1, 4) + (4, 1)

Result:

(2 + (-3), -5 + (-9))

(1 + 4, 4 + 1)

(1, -14)

(25, 5)

(2, -5) - (-3, -9)

(1, 4) - (4, 1)

Result:

(2 - (-3), -5 - (-9))

(1 - 4, 4 - 1)

(5, -14)

(-3, 3)
Identify terms in the Problem

Notice the operation that is in front of each term

Find the terms that are alike.

Perform operation to bring like terms together.

Include any terms that were not combined into answer.

Place terms in appropriate order. (variables 1st, alphabetically)

---

5x - 2y + 10 - x + 3

5x, 10, and 3 are added. 2y and 1x are subtracted.

5x - 2y + 10 - 1x + 3

5x - 1x, 10 + 3, -2y

4x + 13 - 2y

4x - 2y + 13
Act One

- The three witches tell Macbeth that he's going to be a king. (Banquo's sons will be king)

- Macbeth becomes a war hero (Thane of Cawdor)

- Macbeth sends a letter to Lady Macbeth saying that the witches said he's going to be king!

- Lady Macbeth forcefully wants to kill the king & tells Macbeth that she's going to do the murder.

- Macbeth talks to the King about coming over to their house.

- King plans to come over!

- Macbeth's perfect set up!!
FLOW MAP

Measure the mass of an empty container such as a graduated cylinder.

46.9 g

Pour the liquid you want to measure into the graduated cylinder.

Measure the mass of the liquid plus the graduated cylinder.

96.9 g

Subtract the mass of the empty graduated cylinder from the mass of the graduated cylinder plus liquid; the answer will be the mass of the liquid.

\[
\frac{96.9 g - 46.9 g}{50.0 g}
\]
750-650 BC
Monarchy (rule by one)

Monarchy is replaced by Oligarchy

650-580 BC
Oligarchy (few rule over many)

Oligarchy is replaced by Tyrant

580-510 BC
Tyrant (one ruler who takes power by force)

510-430 BC
Democracy (people rule)

Nobles wanted more power

Monarch needed resources from Nobles

The rich ruled for rich not for the people

Famine

General unrest

ATHENS GOVERNMENT
Multi-Flow Map

Why did _____? What are the benefits of _____?

Connection to Standards: Determine the impact the author’s purpose and point of view have on a text.
My dad would be happy.
And I would have a good self-esteem.

No one can bully me.

I can help my friends if they need help.

- Exercise
- Eat right
- Do sports
Observations from our experiment

The Lima Bean Plant Grows
Observations from our experiment

What if the lima bean plant doesn't get sunlight.
Lightening

Very hot and dry weather

Strong winds cause small fires to spread

People misusing matches and lighters

California Wildfires

P.O.V. California Residents

Ashes everywhere

People have to leave their homes and things behind

Innocent people may be hurt or worse, die

Frustration

Harmful smoke and chemicals in the air

Animals die or suffer

We loose trees and grass

P.O.V. Rescue workers

Time for kids news article

Online References
Given from the picture on page p. 232 in problem #8

- Given:
  - $LN \not\equiv LP$
  - $\overline{NM} \equiv \overline{PQ}$
  - $\angle NLM \equiv \angle QPL$

- Angle Angle Side

- Corresponding parts of congruent triangles are congruent

- CPCTC
  - $\angle m \equiv \angle Q$
  - $\overline{N} \equiv \overline{PQ}$
  - $\overline{L} \equiv \overline{QPL}$

- $\Delta MNL \equiv \Delta QPL$
$Y = 10X$ is in the form $y = kx$

$Y = 10X$ is a Direct Variation

- If $X$ increases, then $y$ increases
- The graph is linear with a $y$ intercept of 0
- $Y/X = 10$
- If $X$ decreases, then $y$ decreases
- The constant of variation is 10
THE SLOPES ARE THE SAME

THE Y INTERCEPTS ARE THE SAME

THE LINES ARE COINCIDING

THERE ARE INFINITE POINTS OF INTERSECTION

THE SOLUTION TO THE SYSTEM IS EVERY POINT ON THE LINE

THE SYSTEM IS CALLED CONSISTENT AND DEPENDENT
We watched a video.
Photosynthesis

A plant is a PRODUCER. During photosynthesis, plants make their own food.

Solar Energy

$\text{CO}_2$
Carbon Dioxide from the air.

$\text{H}_2\text{O}$
Water from the soil.

N
Nitrogen & other Minerals from the soil.

$\text{O}_2$
Oxygen is released into the air from the stomata.
Causes and Effects of the Industrial Revolution

**Causes**

- America was no longer living cheap British supplies. We needed more factories.
- Science was popular and developed. So ideas were born.
- There was a demand for machinery such as trains. To produce trains, factories are needed.
- Everyone had the opportunity to succeed. This gave ideas another chance.

---

**Revolution**

**Industrial Revolution**

---

**Effects**

- The successful people became rich and famous.
- Life was more convenient with all the inventions.
- In the Civil War, the North Union had an advantage in the factories.
- America became more advanced in technology.
Jonathan Livingston Seagull

Johnathan became outcast

event

- almost killed two gulls
- did not act like the others
- disobeyed other gulls

causes

he learned to fly faster and better
he learned how to catch 10 feet under water
he learned how to find better food
he became free from the other gulls

effects

he taught other gulls to fly better
Fletcher Lynn was his first student
Zhang made him an instructor
He with other gulls very hard

Aaron Clarke
Jon Stirewalt
Carly Swanson
Justin Wallace
Lizzy

Map developed by
6th Grade LA at
Northwest Middle School
Cabarrus Co., NC
Why I made a bad choice

What happened because of my bad choice

MY BAD CHOICE
I didn't do all of my homework.

My mom got REAL mad at me.

I didn't get a good Final grade.

My guitar got taken up.

I had a bad calendar.

I'll be grounded for who knows how long.

Average: 83

5+

Love it!
Circle Map

What is the definition of ____________?

Connection to Standards: Understand and use general (Tier 2) and domain-specific (Tier 3) academic vocabulary
The Circle Map is used to define a concept, word or idea. It is a great map to use to diagnose prior knowledge, brainstorm before writing, or use as a lesson closure.
K-12 teachers, MS Curriculum Specialist, Asst. Principal

Build trust
Improve communication

Meaningful Parent-Teacher Conferences

- comfortable setting
- not just a sharing of grades
- welcome families into the children's school life
- positive assumptions
- teacher is prepared
- develop personal relationships
- goal-oriented
- 2-way communication

Feb. 23, 2014

www.edutopia.com

Education Week.
July 2014
The next few slides show examples of Circle Maps created by teachers and students from across the country.

Record your notes on page 29.
Options for cafeteria noise level

- Play calming music
- Mix level students
- Play instructional videos
- Recruit parent volunteers
- Eat in classroom
- Harsher consequences for misbehavior
- Incentives
- Yakker Trakker red, yellow, green
- Increased training of adult supervisors
- Have EAs supervise
We cooperate in our classroom.

We cooperate when we visit a specialist.

We cooperate during breakfast and lunch.

We cooperate outside during recess.

cooperate the bus.
We are at lunch.

We are at music.

We are at gym.

Where are we?

We are at recess.

We are at science.

We are at library.
We cooperate in our classroom.

Cooperation

We cooperate when we visit a specialist.

We cooperate during breakfast and lunch.

cooperate the bus.

coopcrate outside during recess.
circle

- eyeball
- plate
- sun
- button
- ball
- flower
- train wheels
- drum
- birdhouse
- hoop earring
- head
- wheel
tire
- pizza
- yo-yo
- head
- hamburger
No fibbing
No chitting
12 ich vose
No Buting in
Win pippol are
Tokeing to the
Thchet to The
No roly eyes
No say Babwads
No fitting
No Layndon
Win were on
The carft
Quantitative Reasoning

- Use symbols when appropriate
- Express meaning of quantities
- Investigate possible avenues or pathways to understand the problem
- Decontextualize - take important into or out of problem
- Contextualize - explain meaning of each part
- Use the correct units appropriately
- Attend to rules/properties of mathematics
- Identify useless info
- Use clear evidence of understanding
- Assign meaning to variables
- Relate numerical representations to events
- Test/question whether answer is viable
- Know more than one way to solve
- Strong math vocabulary (grade level)
- Reason abstractly & quantitatively
- Number operations
- Step 2
- Able to make future predictions
- Able to justify reasoning/justifications
- Background knowledge
- Multiple strategies
- Strong unit
E.Q. How do you define probability?

- Internet
- Previous teachers

Event

- Impossible
- Equally likely
- Certain

Probability

- Counting Principle
- Independent event
  - Rolling a spinner
  - Outcomes
    - $\frac{3}{9} = \frac{1}{3}$
    - $\frac{2}{9}$
    - $\frac{4}{9}$

Sample space

- Text books

Mrs. Rogers
We could get menus from several restaurants.

How many people are in our class?

How much tax will we have to pay?

What kind of pizza will we order?

How much will the drinks cost?

How much will the plates and napkins cost?

We could go online to look at prices or just call.

How many slices are in one pizza?

How many slices of pizza will each student eat?

How much would it cost for the class to eat pizza?

We could get prices from a grocery store.
scarves

sideburns

Cadillac

May still be alive

?
Real-life uses of coordinate plane skills.

- Groceries
- Aislemakers
- Drug store
- Mall, store director
- Mall, store
- Sporting events
- Large theme parks
- Parking
- Travel:
  - Maps
  - Globes
  - Bus routes
  - Navigation
- Computers:
  - Graphics
  - Spreadsheets

The Coordinate Plane

4 quadrants

- X-axis
  - Number lines
  - Containing + and - numbers

- Y-axis

Intersection is called the origin

4 - 90° angles

Point of intersection is 0 on both number lines

Weather:
- Hurricane
- Doppler radar

Intersects with

- A11B
Dolphins

2nd Grade

By Jaron Johnson
Dolphins
at
Grassy
Key

seven to thirty feet long
dark brown, or black
eat fish
with medicine
in it
feels like wet rubber
dolphins are mammals
fed ten to twenty-six pounds
eat fish
dolphins is sleeping half brain is awake other half brain is 20% bigger than humans

Whales and Other Sea Mammals

Jaron
Dolphins

- Look like dark brown or black
- Feels wet rubber skin
- Eats fish
- Amazing brain
  - 20% bigger than humans' brain
  - Is sleeping half brain is awake other half sleeping
  - Eats fish with medicine in it

- Mammal
  - Breath every seven to eight minutes
  - Have hair around the mouth
  - Have hair and lungs

- Is seven to thirty feet long
- Are mammals
Dolphins

These are what dolphins look like. Dolphins are dark brown or black. A dolphin is seven to thirty feet long. Their skin feels like wet rubber. Their skin is smooth.

Everybody knows that dolphins eat fish. The dolphin is fed ten to twenty-six pound a day. A sick dolphin eats fish with medicine in it.

Dolphins are amazing. A dolphin's brain is 20% bigger than a human's brain. When a dolphin is sleeping half of his brain is awake and the other half is sleeping.

Dolphins are mammals. They breathe
every seven or eight minutes, Dolphins have hair around its mouth. Dolphins have hair and lungs and that's why dolphins are mammals.
NOTE MAKING GUIDE

For the FRAME OF REFERENCE

A Language for Learning
WELCOME BACK!
What are the needs of your students? What are your school’s improvement plans?

RIGOROUS COLLEGE AND CAREER READINESS STANDARDS

TODAY’S AGENDA

WHAT ARE THE DEFINING CHARACTERISTICS OF THINKING MAPS?

WHAT IS THE PURPOSE OF EACH MAP AND HOW DO THESE VISUAL PATTERNS SUPPORT CRITICAL THINKING?

WHAT STEPS ARE NECESSARY TO EMPOWER STUDENTS TO BECOME INDEPENDENT THINKERS?

HOW CAN THINKING MAPS BE APPLIED TO COLLEGE AND CAREER READINESS SKILLS?

WHAT IS THE PLAN OF ACTION FOR A SUCCESSFUL IMPLEMENTATION OF THINKING MAPS?

21ST CENTURY SKILLS

What are the needs of your students? What are your school’s improvement plans?
PROCESSING ACTIVITIES

Please clear off your desks.
Use the cards on your table to “build” a group Tree Map. First line up the guiding questions, then classify the rest of the cards under the correct category.
Now that you have reviewed the language of Thinking Maps, let’s look at how you can use that language. Add a final set of cards to the correct categories.
<table>
<thead>
<tr>
<th>Thinking Map</th>
<th>Thought Process</th>
<th>Key Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circle</td>
<td>Defining in Context</td>
<td>Context, Context clues, List, Define, Tell everything that you know,</td>
</tr>
<tr>
<td></td>
<td>Brainstorming</td>
<td>Brainstorm, Identify, Relate prior knowledge, Tell About, Explore the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>meaning, Discuss</td>
</tr>
<tr>
<td>Bubble</td>
<td>Describing</td>
<td>Describe, Use vivid language, Observe using the 5 senses, Describe</td>
</tr>
<tr>
<td></td>
<td></td>
<td>feelings, Attributes, Characteristics, Properties, Adjectives, Qualities</td>
</tr>
<tr>
<td>Double</td>
<td>Comparing and</td>
<td>Compare / Contrast, Discuss similarities / differences, Distinguish</td>
</tr>
<tr>
<td>Bubble</td>
<td>Contrasting</td>
<td>between, Differentiate</td>
</tr>
<tr>
<td>Tree</td>
<td>Classifying</td>
<td>Classify, Sort, Group, Categorize, Give sufficient and related details,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Types of, Kinds of, List and Elaborate, Taxonomy</td>
</tr>
<tr>
<td>Brace</td>
<td>Part to Whole</td>
<td>Parts of, Take apart, Show structure, Physical components, Anatomy</td>
</tr>
<tr>
<td></td>
<td>Relationship</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>Sequence</td>
<td>Sequence, Put in order, Order, Recount/Retell, What happens next, Cycles,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patterns, Processes, Change, Solve multi-step problems</td>
</tr>
<tr>
<td>Multi-Flow</td>
<td>Cause and Effect</td>
<td>Causes and effects, Discuss consequences, What would happen if, Predict,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Change, Identify motives, Why, Results, Outcomes, Benefits</td>
</tr>
<tr>
<td>Bridge</td>
<td>Seeing Analogies</td>
<td>Identify the common relationship, Guess the rule, Interpret symbols,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Simile, Metaphor, Allegory, Ratio</td>
</tr>
</tbody>
</table>
What steps are necessary to empower students to become independent thinkers?
You have implemented a plan for teaching Thinking Maps to your students.

Your students understand the fundamental reasons for using Thinking Maps®.

Your students can draw each of the Thinking Maps®.

Your students have begun to understand the purpose for each TM and can recognize them when applied in content areas.

You can match the cognitive vocabulary that corresponds to each TM.

You have modeled the use of Thinking Maps® in a variety of curriculum areas.
Empowering students to be more skillful thinkers, to have the tools to be more critical in their thinking, is a major goal of Thinking Maps, Inc.
To help students become independent thinkers they need patterns for thinking.
Teaching Schedule for Elementary

Week 1
Circle Map

Week 2
Bubble Map

Week 3
Double Bubble Map

Week 4
Tree Map

Week 5
Brace Map

Week 6
Flow Map

Week 7
Multi-Flow Map

Week 8
Bridge Map

Week 9
All 8 Maps
Using the Resource Pages

Page 83

The resources provided in this text should only be used when introducing the maps to students. Student should begin immediately to draw the maps on their own. Even when you use the masters during the initial teaching, students should be encouraged to go beyond the basic visual.
My Family

- my sister
- my baby sister
- my brother
- my uncle
- Alexis
- my dad
- my mom
- baby
Playful
Special
Loving
Wonderful
Family
Kinho
Fun
Helpful
Caring
Bubble Map

wears contacts
brown eyes
curly hair
Funny
unique
single
Nice
white teeth
Kind
white
cool
Smart
tall
brown-haired
mammal
ugly
friends
mean
Katie

THINGS I LIKE

- Sports
  - Baseball
  - Tennis
- Computer
  - MVP
  - Baseball
- Food
  - Pizza
  - Pasta
  - Flight Simulator
  - Seafood
Gradual Release of Responsibility

The purpose of the 8 week introduction process is to help students develop a level of independence with the language of the maps.
MONDAY: Introducing the Circle Map

Create a Circle Map to help us all know important things about you.

In the Frame of Reference, include key people and things that influence who you are.

Pair with one other person and share your information.
Teacher: What do you know about a coordinate plane?

No response from students.

Teacher: What if I told you some of the real-life uses of coordinate planes. I will write these in the Frame of Reference. (Teacher adds examples to the Frame.)

Teacher: Now let’s try to define the coordinate plane based on these examples.

Teacher: Turn to your neighbor and tell him/her two of the defining characteristics of a coordinate plane.
Teacher: Before we start our lesson on geological formations, work with a partner to brainstorm everything you already know about the topic.

Add a Frame of Reference and write a brief definition based on the information in your Circle Map.

Be prepared to share your ideas with the whole group.
Assignment:

Research a famous American or American symbol.

Take notes on the information and then choose key details to create a “Who Am I?” Circle Map.
FRIDAY: Independent Choice

Use a Circle Map to summarize anything that you have learned this week.
STRATEGIES FOR SUCCESS

During the introductory period, be sure to:

• Focus on the academic vocabulary (pg. 77)
• Go beyond the basic structure of each map
• Use multiple maps

Cause, effect, impact, benefits, motives, if...then, etc.
DIRECTIONS

1. Turn to pages 299 – 300.

2. Use these two pages to plan content connections for the first 8 weeks of your TM’s implementation.

3. Insert these completed pages next to page 84, 88 or 91.

CONTENT CONNECTIONS

Map ________________________

Thought Process ______________

Curriculum Connections:

____________________________

____________________________

____________________________

Draw the Map:
“Report on a topic or text, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.”
DOBI BOBI MAP

les writing

Discribe

Smaller

Both Maps

Both Lists Bobls

fun

Compar

Biger
Alex

With a BoBl Map you do less writing on the other hand a DoBl BoBl map you do more writing.

A BoBl Map you describe things while a DoBl BoBl Map you compare things. A BoBl Map is smaller than a DoBl BoBl
Map.
<table>
<thead>
<tr>
<th>CIRCLE MAP</th>
<th>TREE MAP</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Circle Map" /></td>
<td><img src="image" alt="Tree Map" /></td>
</tr>
<tr>
<td>For Defining in Context</td>
<td>For Classifying and Grouping</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BUBBLE MAP</th>
<th>DOUBLE BUBBLE MAP</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Bubble Map" /></td>
<td><img src="image" alt="Double Bubble Map" /></td>
</tr>
<tr>
<td>For Describing using Adjectives</td>
<td>For Comparing and Contrasting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FLOW MAP</th>
<th>MULTI-FLOW MAP</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Flow Map" /></td>
<td><img src="image" alt="Multi-Flow Map" /></td>
</tr>
<tr>
<td>For Sequencing and Ordering</td>
<td>For Causes and Effects</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BRACE MAP</th>
<th>BRIDGE MAP</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Brace Map" /></td>
<td><img src="image" alt="Bridge Map" /></td>
</tr>
<tr>
<td>For Analyzing Whole Objects and Parts</td>
<td>For Seeing Analogies</td>
</tr>
</tbody>
</table>
# THE THINKING MAPS® BODY MAPS

<table>
<thead>
<tr>
<th>Image</th>
<th>Type of Map</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Circle Map" /></td>
<td>Circle Map</td>
<td>Defining in Context</td>
</tr>
<tr>
<td><img src="image" alt="Bubble Map" /></td>
<td>Bubble Map</td>
<td>Describing</td>
</tr>
<tr>
<td><img src="image" alt="Double Bubble Map" /></td>
<td>Double Bubble Map</td>
<td>Comparing and Contrasting</td>
</tr>
<tr>
<td><img src="image" alt="Tree Map" /></td>
<td>Tree Map</td>
<td>Classifying</td>
</tr>
<tr>
<td></td>
<td>Flow Map</td>
<td></td>
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<tr>
<td>-------</td>
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</tr>
<tr>
<td></td>
<td>Sequencing</td>
<td></td>
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<tr>
<td></td>
<td>Multi-Flow Map</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cause and Effect</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brace Map</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parts of the Whole</td>
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</tr>
<tr>
<td></td>
<td>Bridge Map</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seeing Analogies</td>
<td></td>
</tr>
</tbody>
</table>
How can Thinking Maps be applied to College and Career Readiness standards?
“Text structure provides a conceptual net for keeping information in mind.”

“Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution, etc.) of events, ideas, concepts or information in a text.”
Identifying how an author structures his/her information helps students know which key ideas and details to gather when they analyze the information in the text and determine the main ideas.
CONCEPTUAL NETS
The water is cleaned at the water treatment plant. This cleaning is done in steps. First, the water is poured into a large tank. Then, it is mixed with a substance that causes sticky clumps to form. The clumps settle on the bottom of the tank and the cleaner water moves on. The water still needs more cleaning. In the second step, water is poured through a layer of gravel.
Sample Passage

Lewis and Clark were both strong leaders but different from each other. Lewis liked to walk on the riverbank ahead of everyone. Clark guided the boat along the river.
Sample Passage

Scientists come to the Antarctic to study the weather and the ice. Scientists also want to learn more about how animals live in this harsh climate.
What are the parts of a volcano?

How would you describe a volcano?

When did the eruptions happen?

What were the causes and effects of the volcano?

How are these two volcanoes alike and different?

What are the parts of a volcano?
Text Types and Purposes

“Write informative / explanatory texts to examine a topic and convey ideas and information clearly, with: topic, focus, related information grouped logically; linking words; precise language; concluding statement or section.”
Multi-Flow

- Lava flows
- Ash & rock spray the air
- Started out power lines
- Killed fish & destroyed rice fields
- People forced to evacuate

Volcanoes are destructive to environments and livelihoods, but can be predicted.

Volcanoes are made of melted ash and rock.

The Mayon volcano was 8,100 feet tall and erupted 17 times in the Philippines, while the Pacaya volcano was 8,371 ft. tall and only erupted once in Guatemala. When unstable parts of the earth's crust shift downward, magma rises, pressure builds, and a volcano erupts.

People are forced to evacuate.

Double Bubble

- Volcanic ash
- Lava flow
- Old lava & ash deposits
- magma chamber
- continental crust
- ocean crust

Volcanoes are made of melted ash and rock.
So, what we've learned is... The Ring of Fire, geologically speaking is WAY different than what Johnny Cash sings about! The Ring of Fire spans 3 oceans bordering on 4 different major continents. When these continents are combined, they are referred to as "World Hot Spots". When understanding volcanoes, you're going to have to use words like: magma, ash, lava, and crater. A volcanologist is a person who studies tectonic plate shifting and determines the causes of eruptions like Mayon and Ranco Pacaya. These scientists determine the effects of volcanoes on animal and plant life as well. By constantly studying the Earth's ever changing lands, scientists are able to help us prepare for emergencies from Good Ol' Mother Nature.
CLOSURE and Next Steps
High above the hushed crowd, Rex tried to remain focused. Still, he couldn’t shake one nagging thought: He was an old dog and this was a new trick.
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